ERG COMMON POSITION:
Guidelines for implementing the Commission Recommendation C (2005) 3480 on Accounting Separation & Cost Accounting Systems under the regulatory framework for electronic communications

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Introduction

This ERG Common Position provides guidance on how to implement the Commission Recommendation C (2005) 3480 on accounting separation and cost accounting systems under the regulatory framework for electronic communications.

The aim of this document is to set standards of process and procedure by which NRAs determine the compliance of regulated undertakings with the Recommendation and to guide these undertakings to design, specify, implement and operate fit for purpose cost accounting and accounting separation systems to meet regulatory obligations.

The European Regulators Group has provided an Opinion on the revision of Commission Recommendation on accounting separation and cost accounting of 1998.

These guidelines will be reviewed not later than three years after the date of application of the recommendation.

Section 1. Accounting separation

An accounting separation system is a comprehensive set of accounting policies, procedures and techniques that can be applied to the preparation of financial information that demonstrates compliance with non-discrimination obligations and the absence of anti-competitive cross-subsidies. The outputs from such a system must be capable of independent verification (auditable) and fairly present the financial position and relationship (transfer charge arrangements) between product and service markets. Using accounting separation, a National Regulatory Authority (NRA) imposes on the notified operator a set of rules on how accounting information should be collected and reported.

The availability of detailed, separated accounting information is important either to enable the auditor to provide an opinion as required by the NRA or for the NRA to carry out its own validation exercise.

Accounting separation provides a systematic disaggregation of costs, revenues and capital employed between disaggregated regulatory entities and services of a vertically integrated undertaking. It should also ensure that each financial report includes only costs, revenues and capital employed that are relevant to the regulatory entities and services.

In order to facilitate compliance with obligations of transparency and non-discrimination by operators with significant market power (SMP), the EU regulatory framework empowers NRAs to require that all accounting records, including data on revenues received from third parties, are provided on request (Access Directive, Article 11.2).

Accounting separation requirements may be developed starting from either historical cost accounting ("HCA") or current cost accounting ("CCA") principles.

In developing separated accounts, the following matters could, inter alia, be taken into account:

- Identifying markets and services to be separated, providing more detailed information, (e.g. an individual profit and loss statement, a statement of capital employed and information on the main cost drivers, such as minutes, access lines and/or full time equivalent or labour costs).
- The provision of reconciliation and control statements by the notified operator (to ensure that costs are not covered twice and agree back to the statutory accounts of their total corporate entity).
- An indication of how the average cost per component/activity is allocated to the specific disaggregated regulatory entities and services.
- Detailed, published guidelines for the cost base (HCA; CCA) and the methodology to use for cost allocation (FAC/LRIC).
- Definition of transfer charges (transfer charges describe transactions that flow between disaggregated entities and services of a vertically integrated undertaking). A well-defined, transparent and verifiable transfer charging system is necessary for notified operators to demonstrate non-discrimination and calculate internal costs

and revenues for both cost-orientation and non-discrimination purposes. They typically reflect the vertically integrated nature of notified operators and will enumerate the wholesale/retail relationships between the economic markets and services within the undertaking's scope of activity.

There should be a clear rationale for the transfer charges used and each charge should be justifiable. Charges should be non-discriminatory and there should be transparency of transfer charges in the separate accounts.

Transfer charges should be determined as the product of usage and unit charges. The charge should be equivalent to the charge that would be levied if the product or service were sold externally rather than internally.

For accounting separation purposes it should be assumed that a notified operator's retail business pays the same charge for the same input service as it would (bought on its own wholesale market) if bought externally by an alternative operator.

There should be consistency of treatment of transfer charges from year to year. Any change should be consistent, transparent and satisfactory to the NRA.

Section 2. Attribution methodologies and the application of the cost causality principle

This section sets out the principles that should be followed in order to attribute costs, capital employed and revenues for the purposes of cost accounting and accounting separation.

Costing systems should allow the allocation of costs to unbundled network components, in particular to determine the cost of unbundled services.

Clear attribution to individual services and or to network components is fundamental to the improvement of transparency and of the quality of information provided by costing systems used for regulatory purposes. Therefore, detailed scrutiny by NRAs in this matter may be required.

2.1 Principles for cost causality

Identifying different types of costs and attributing these to individual services or other regulatory "objects" such as network components can be complex and detailed. Attributions should be based on the principles of cost causality, objectivity, consistency, efficiency and transparency.

The principle of causality implies that costs are allocated, directly or indirectly, to the services that "cause" the costs (and revenues) to arise. This requires the implementation of appropriate and detailed cost allocation methodologies.

In practice, this requires that operators:

- Review and justify the relevance of each item of cost, capital employed and revenue;
- Establish and quantify the factor or "driver" that caused each item to arise; and
- Use the driver to allocate each item to individual businesses/activities/network components or services.

Cost allocation methodologies must be satisfactory to the NRA and may also be subject to public consultation.

Each item of revenue and cost must be attributed to the products and services provided by operators. In the case of revenues it should be relatively straightforward to allocate a substantial proportion directly. This is not the case for costs, however, because a relatively high proportion of operators' costs are shared between different products and services.

For example, the FAC approach attributes all relevant costs, revenues, assets and liabilities incurred by an undertaking to all of its outputs applying the causality principle. Attribution methodologies need to be developed and applied where costs are not directly allocable to the reporting object (e.g. component, market or regulated service). Management accounting techniques such as Activity-Based Costing ("ABC") can be used. An undertaking will also need to identify and capture relevant cost drivers, such as operational volumes data using sampling and survey techniques, to support these systems.

2.2 Cost allocation methodology: Activity-Based Costing

ABC is a management accounting approach that allows causal relations to be established between costs and services or products. ABC views the services and products as a series of activities, each of which consumes resources and therefore generates costs. This methodology, based on cost drivers, traces and allocates costs through the activities performed and establishes a clear cause-and-effect relationships between activities, their associated costs and the resulting output.

ABC may introduce an intermediate stage of activities, enabling some costs - that would otherwise be allocated in a less direct way - to be attributed to the services that cause them to occur. This technique may therefore strengthen the causal link for certain types of indirect cost where alternative approaches may prove less robust.

2.3 The cost allocation process

In practice allocation processes may vary depending on the undertaking's organisational structure, the way(s) in which financial/operating data are captured, and cost standards used.

A key factor, which will influence the ultimate usefulness of the costing information, is the level of detail or "granularity" at which costs are initially captured. A high level of granularity (such as the ability to identify asset category information to support the analysis of depreciation charges) - without prejudice to the principles of proportionality and materiality – should be applied. In order to ensure data integrity and the capability to demonstrate that market related information has been extracted properly and reconciles with corporate financial information, the source costing information will probably need to be drawn from the whole of the undertaking's cost base (including that incurred in the provision of non-SMP markets).

The costing information held by these systems may be divided between operating costs, capital costs and accounting entries, such as depreciation.

Costs can be categorised, especially using FAC methodologies, as either direct or indirect costs as follows:

a) Directly attributable costs

Directly attributable costs are those costs that can be directly and unambiguously incurred against regulatory entities. All other costs are indirectly attributable.

b) Indirectly attributable costs

Indirectly attributable costs are those costs not falling in the directly attributable category that can usually be apportioned to regulatory entities on a measured objective basis. Typically an indirectly attributable cost would be caused by an internal cost driver, for example Human Resource (HR) costs could use weighted headcount, potentially weighted by average salaries.

For certain types of indirectly attributable costs[1] the cost driver is difficult to identify or is very weak. In this case an alternative cost driver or method can be chosen as long as these are fair and objective, that is they do not favour the notified operator or materially distort the results. In these circumstances, an NRA may set specific guidelines in order to limit the potential arbitrary and material effect of these allocations.

Certain types of indirectly attributable costs are "common' to a number of activities and are usually called "common costs".

2.4 The cost "cascade" or attribution hierarchy

Costs may be attributed to "Services", or to cost pools called "Network components", "Related functions" or "Other functions". These may be defined as follows:

Table 2.1

Services	These are the costs that can be directly identified with a particular service. For these purposes, the term "service" refers both to end-user services (e.g. the provision of retail leased lines) and network services (e.g. interconnection services).
Network components	This pool contains the costs relating to the various components of transmission, switching and other network plant and systems. The costs will be in respect of network components that cannot be attributed directly to a particular service as they are utilised in the provision of a number of services.
Related functions	This pool contains the costs of retail and wholesale functions necessary for the provision of services to the customer or end users such as billing, maintenance, and customer services.
'Other' functions	This pool contains the costs of functions that are not related to the provision of particular services but are an important part of the operations of the company. Examples of such costs include planning, personnel and general finance.

As noted, there are a series of steps which allocate cost pools in a tiered approach to eventually allocate costs to services. These allocation steps are performed using appropriate drivers. Each step is summarised below:

Table 2.2

Step 1	The allocation of 'other' functions across related functions, network components and services.

1 This category of indirectly attributable costs is sometimes referred as "unattributable costs".

Step 2	The allocation of the related function costs to services and network components.
Step 3	The allocation of network components to services.
Step 4	The grouping of services into markets (as defined for the purposes of accounting separation).

Each of the allocation steps illustrated above could involve a number of detailed sub-steps, particularly if the initial capture of cost information is at an aggregated level. Where it is possible to perform an allocation via a number of direct or indirect attributions this is preferable to allocation through a single discrete step particularly if the reliability of the attribution methodologies is uncertain.

The attribution methodologies should be comprehensively documented and transparent to the satisfaction of the NRAs. A description of attribution methodologies should also be published by the notified operator.

Notified operators may need to use survey and sampling techniques such as pattern of usage of network element for each type of product/network service, staff activity data and engineering information in order to allocate costs (including capital costs) to the services that they provide and, subsequently, to the businesses defined for the purposes of accounting separation. For example, periodic analysis of the tasks undertaken by staff in customer call centres may be used to determine the amount of time spent by those staff on different tasks. This information may then be used to allocate - either directly or indirectly - the costs associated with the staff to the services provided by the operator.

The fundamental objective is to arrive at an appropriate basis of attribution to comply with the principle of causation. However, when an NRA is considering or determining a cost recovery mechanism or value there are factors to be taken into account, in addition to cost causality principle (normally established in the cost accounting system), such as distribution of benefits, effective competition, cost minimisation, reciprocity and practicality.

All aspects of the cost attribution process including cost driver definitions and calculations, survey and sampling techniques and valuation methodologies must be made available to, and subject to review by, the NRA.

2.5 Operating costs and capital employed

The cost allocation process previously outlined relates, in principle, to both operating and capital costs, including depreciation, of operators.

2.6 Revenues

Usually revenues can be directly allocated to the products and services to which they relate based on accounting records and billing system information. In those cases where direct allocation based on accounting records or billing system data is not possible (e.g. bundled discounts), revenues should be attributed on the basis of causation.

Section 3. Cost accounting

3.1 Cost accounting systems

A cost accounting system is a set of rules which supports the attribution of costs, revenues and capital employed to individual activities and services.

More precisely, it describes a set of systems, processes, policies and procedures that enables a notified operator to establish a record keeping regime necessary to meet its regulatory obligations which keeps track of and reports on revenues, costs, assets and capital employed.

One of the key objectives of a cost accounting system is to trace and analyse costs in order to demonstrate compliance with a cost orientation obligation for regulated services. Fully attributed costs ("FAC"), (also referred as fully distributed costs ("FDC")), and long run incremental costs ("LRIC") are the descriptions given to the two main methodologies used for this purpose.

Another purpose for a cost accounting system is to constitute the main elements of the accounting separation system, as it can also be used to demonstrate compliance with the non discrimination obligations and the absence of anti-competitive cross-subsidies.

Cost accounting is heavily dependent on sound data gathering to provide relevant and reliable outputs and to ensure that fair, objective and transparent criteria are followed by notified operators in allocating their costs to services. Without such data it is impossible to determine the relevant costs of providing services.

3.2 Current cost accounting: guidelines for implementation

Historical cost information is generally accepted as being adequate for financial stewardship purposes but may provide unsatisfactory indicators for regulatory decision making. To recognise the effect of changing prices or when using a forward-looking costing methodology, a valuation of the relevant asset base to current replacement cost values (also known as 'value to the business') should be performed. It is suggested that the methodology and criteria for the evaluation of network assets at current value are agreed with the NRA and made transparent to market players.

Current cost accounting concepts were originally developed to remedy the limitations of historical cost accounting in a world of changing prices either due to inflation or other reasons such as rapid technological change. This guidance therefore is more relevant to the preparation of financial information from accounting records (sometimes referred to as the 'top-down' approach) rather than "bottom-up" or engineering models where asset values are normally calculated directly from current values.

The main regulatory impact of applying a current cost methodology is that it requires undertakings to record the value of assets to reflect their 'value to the business' which, by

implication, should result in a net asset cost base and measures of profits similar to that expected under fully competitive market conditions.

However, it must be noted that several factors contribute to the differences in cost changes across assets. The unit costs of real estate, cable, electronic equipment such as switches and routers, capital and other major inputs can escalate (or reduce) at rates that diverge greatly from the overall rate of inflation, depending, among other things, on the rates of economic growth and/or the rate of technological progress in electronic equipment.

For practical purposes (consistency, transparency and comparability) though, only some factors can be taken into account in the various applications of current cost methodologies. It is important that the notified operator makes the factors employed in its current cost valuation methods transparent and explicit. The parameters and the factors used must be satisfactory to the NRA and may also be subject to public consultation.

The use of current cost evaluation is intended to measure the financial performance of notified operators in a way that is broadly consistent with the costs faced by new or potential competitors in a market wishing to offer services at a price that would allow them to recover their current costs. However, there may be significant transitional issues raised when CCA is implemented. For example, the valuation of the asset base may result in significant windfall holding gains and losses for the undertaking subject to accounting separation regulation. It may not be appropriate, depending on the specific regulatory objectives of the NRA, to allow those windfall gains and losses to be reflected in pricing decisions.

3.2.1 Calculation of current cost asset values

A key element of the current cost methodology as applied to the communications sector is the valuation of network assets. Network assets subject to valuation should be transparently identified with sufficient granularity and explanation that would enable an NRA to properly examine and verify the information. Network assets should be valued according to the following considerations and decision rules.

Gross replacement cost ("GRC")

The gross replacement cost of an asset can be calculated in a number of ways. The valuation process could use open market value or various forms of indexation.

Although the current cost of an asset is often its net current replacement cost, this does not mean that it can be assumed that the asset would be replaced by an identical asset, as this will seldom be the case. Indeed, it may be that identical assets are no longer available. It is the replacement of the 'service potential', or capacity to produce similar useful output or service, which is assumed.

Depending on the capital maintenance concept used, the calculation of the gross replacement cost might not provide the appropriate value against which financial performance should be measured. A gross replacement cost would approximate to the value of a brand new network providing the same level of functionality and capacity as the existing network using assumptions for modern equivalent assets or alternative valuation methodologies. The gross replacement cost would be equivalent to the net replacement cost

and historic cost value if the assets had been purchased in the same period as the regulatory accounts and therefore at the start of their useful economic life.

Net replacement cost ("NRC")

When assets being valued have been purchased at various times and are at various stages in their useful economic lives, one appropriate method is to use a NRC approach and, by implication, the current cost depreciation charge. The NRC methodology can provide the appropriate value against which financial performance can be measured.

The net current cost can be described as the lower of its net current replacement cost and its recoverable amount. The recoverable amount is the higher of an asset's net realisable value and amount recoverable from its future use (sometimes referred to as its economic value).

The current cost depreciation charge can be calculated in the same way as the historical depreciation charge, except that it is current cost rather than historical cost which is being depreciated. As such, the same depreciation methods and asset lives as are used in the historical cost accounts should be used. Therefore, assets with Net Book Value equal to zero, i.e. fully depreciated under HCA, but still in use, are normally valued, for current cost accounting purposes, at a Net Replacement Cost equal to zero. Other approaches may be used (for example because the NRA might not consider the depreciation method and asset lives appropriate for the regulatory scope) and this will introduce important and natural reconciliation differences between cost models.

Deprival value ("DV")

The deprival value represents the recoverable value of the asset to the organisation; that is, the higher of the economic value the asset is likely to generate and the net realisable value ('NRV`) of the asset if it were sold.

Economic value ("EV")

The economic value is a measure of the value of an asset based on the net present value of future cash flows.

The valuation rules can be summarised as follows:

- if EV > NRV, the company will keep the asset in its current use;
- if NRV > EV, the company will sell the asset now as the proceeds from the sale would exceed the economic value that it would be expected to generate from its continued use.

Therefore the deprival value or recoverable amount of the asset is the higher of the EV and NRV. The current cost therefore is the lower of its deprival value and the net replacement cost. That is, the lower of the amount the company could recover from the asset and the cost to the company to replace the asset with an identical one.

3.2.2. Modern equivalent asset (“MEA”) valuation

A gross MEA value is what it would cost to replace an old asset with a technically up to date new one with the same service capability, allowing for any differences both in the quality of output and in operating costs. For the replacement cost valuation to be appropriate it is not necessary to expect that the asset will actually be replaced.

The adoption of CCA methodologies in electronic communications is both justified and complicated by the rate of technological change in the industry. This has implications in both identifying suitable replacement costs for old technology assets and ensuring the assets exhibit the same levels of functionality and capability.

Examples of technological issues for providers of electronic communications networks include:

- copper versus fibre cables;
- wired versus wireless technologies for local access;
- IP versus switched technologies for voice traffic;
- PDH transmission technology versus SDH technology.

The new technologies are usually superior in many aspects to the older technologies in terms of functionality and efficiency. However, since MEA values are required to reflect assets of equivalent capacity and functionality, it may be necessary to make adjustments to the current purchase price and also the related operating costs - for example, the new asset may require less maintenance, less energy and less space. Other adjustments may also be required in the calculation of current costs, e.g. surplus capacity.

The MEA value may also need to reflect technical constraints to the procurement of certain types of asset e.g. that the asset should be valued in its lowest capacity configuration, even if the capacity of the MEA is significantly higher than required.

3.2.3 The capital maintenance concept

There are two different approaches to measuring a company’s capital. The approaches differ in their definition of 'capital maintenance’, that is, the way in which the capital of the company is viewed when determining profit.

Capital can either be viewed in operational terms (i.e. as the company's capacity to produce goods and services) or in financial terms (i.e. as the value of shareholders’ equity). These concepts are known respectively as “operating capital maintenance” (OCM) and “financial capital maintenance” (FCM):

- OCM considers the operating capability of the company is maintained. Capital maintenance under this approach requires the company to have as much operating capability - or productive capacity - at the end of the period as at the beginning. In this approach, revenues become profits after a sufficient amount has been provided to maintain the physical capability of the asset.
- FCM considers the financial capital of the company is maintained in current price terms. Capital is assumed to be maintained if shareholders' funds at the end of the

period are maintained in real terms at the same level as at the beginning of the period. In this approach, revenues become profits after a sufficient amount has been provided to maintain the financial value of the asset (or the business).

An implication of the OCM concept is that holding gains or losses insofar as they relate to price changes on net operating assets are capital adjustments. Surpluses and deficits on the restatement of net assets to current cost are, therefore, not dealt with through the profit and loss account, but as a movement on the current cost reserve. Under the FCM concept however these holding gains and losses are taken to the profit and loss account. Therefore, using the FCM methodology (with full disclosure of the holding gain/(losses) adjustment) it is possible to easily restate the information on an OCM basis. The reverse is not as straightforward because balance sheet transactions in respect of any holding gains/losses under OCM will not necessarily be prepared or disclosed appropriately.

These two concepts can produce significant differences in the measures of cost and profitability. NRA's will therefore need to be satisfied that the most relevant concept is applied and interpreted correctly depending on the purpose of the accounting information. For example, for the reporting of top-down regulatory accounts, the FCM concept might be preferred because it could better address the concerns of shareholders and potential investors.

3.2.4. The main adjustments under OCM

OCM is concerned with the maintenance of the productive capacity of the operator. One of the significant adjustments relates to the revaluation of fixed assets to current cost. Due to this revaluation, additional adjustments are then required to restate depreciation amounts. These are identified below.

Revaluation of fixed assets

Under OCM the gross book value of assets is valued to take account of specific price changes in the price of assets and changes in technology.

There are a number of techniques that can be used to revalue assets. For example, specific price indices can be applied to the existing gross book value of assets. These may be derived from the company's procurement department. Alternatively, modern equivalent assets methods valuation methods may be used. These methods base the value of assets on the current cost of MEA including any adjustments necessary to reflect, for example, functionality differences or operating cost efficiencies. These MEA adjustments are discussed further below.

Supplementary depreciation

The depreciation charge for the period is calculated on the basis of the current asset valuations. This ensures that the current cost of fixed assets consumed during the period is charged against revenue. For each asset, or group of assets, the depreciation charge can in some cases be calculated using the same accounting policies (e.g. asset lives, depreciation profiles) as used for the preparation of historical accounts.

Supplementary depreciation is the difference between the historical cost depreciation and the current cost depreciation charge. It may be positive or negative depending on whether the value of assets is rising or falling. It is a charge against profits in the profit and loss account.

Illustration of these concepts

The tables below illustrate the above concepts for an asset purchased for EURO 10.000. The assumed life of the asset is four years. For the sake of simplicity, it is assumed that the asset is depreciated on a straight line basis and has a zero residual value. In Table 1 it is assumed that the gross cost of replacing the asset falls by 10 % per annum. Table 2, on the other hand, assumes that the gross cost of replacement increases by 5 % per annum.

Table 1

Replacement cost falling by 10 % per annum

Year	Current Cost	Depreciation					
		Current cost	Historical	Supplementary	Cumulative	'Required'	Backlog
0	10 000						
1	9 000	2 250,00	2 500,00	(250,00)	2 250,00	2 250,00	Nil
2	8 100	2 025,00	2 500,00	(475,00)	4 275,00	4 050,00	(225,00)
3	7 290	1 822,50	2 500,00	(677,50)	5 872,50	5 467,50	(405,00)
4	6 561	1 640,25	2 500,00	(859,75)	7 107,75	6 561,00	(546,75)

Table 2

Replacement cost rising by 5 % per annum

Year	Current Cost	Depreciation					
		Current cost	Historical	Supplementary	Cumulative	'Required'	Backlog
0	10 000,00						
1	10 500,00	2 625,00	2 500,00	125,00	2 625,00	2 625,00	Nil
2	11 025,00	2 756,25	2 500,00	256,25	5 381,25	5 512,50	131,25
3	11 576,25	2 894,06	2 500,00	394,06	8 406,56	8 682,19	275,63
4	12 155,06	3 038,77	2 500,00	538,77	11 720,96	12 155,06	434,10

Derivation and explanation of the preceding tables:

- current cost is the gross replacement cost of the asset;
- current cost depreciation is derived as the gross replacement cost at the end of the period divided by the asset life;
- historical cost depreciation is the original acquisition cost divided by the asset life;
- supplementary depreciation is the additional depreciation charged as a result of revaluing the asset (it is derived by taking current cost depreciation and deducting historical cost depreciation) – it may be either positive or negative;
- cumulative depreciation is the sum of cumulative current cost depreciation at the end of the previous period, backlog depreciation for the previous period and current cost depreciation for the current period. This is equivalent to the required depreciation at the end of the previous period plus current cost depreciation for the current period;
- 'required` depreciation is the cumulative depreciation that would have been charged given the current cost of the asset - in other words, it is the difference between the gross and net replacement cost of the asset; and
- backlog depreciation is the difference between required depreciation and cumulative depreciation and arises where the prior period current cost depreciation shows a shortfall or surplus due to asset price changes.

3.2.5. Further adjustments under financial capital maintenance (FCM)

Under FCM there are similar adjustments to be made as in OCM, concerning the revaluation of fixed assets and supplementary depreciation. However, under FCM some of the treatment in terms of profit and loss needs to be further adjusted to take account of holding gains or losses that arise due to the effect of asset-specific price changes on the current cost value of assets and the effect of general inflation on shareholders' funds.

3.2.5. The choice of capital maintenance concept

The above discussion has set out the main adjustments required to historical cost accounts in order to derive current cost information using OCM or FCM. It has been included to reflect the fact that where LRIC is used as the basis for cost oriented charges, e.g. call termination charges, assets are valued at their market value (or current cost). The use of current cost information is therefore a key aspect in helping to determine appropriate interconnection charges, for example for call termination, and special attention should be provided to the choice of capital maintenance as employed by an efficient operator.

If OCM is used to determine charges, the revenue requirement would be derived as the sum of operating costs, historical cost depreciation, supplementary depreciation and a return on net assets. Under FCM, the revenue requirement would be the sum of operating costs, a return on net assets less holding gains/losses plus the adjustment to shareholders' funds, historical cost depreciation, and supplementary depreciation. Required revenue therefore differs depending on the capital maintenance concept used.

Section 4. Long Run Incremental Cost

4.1. Concept and economic rationale of long run incremental cost

Conceptually, the LRIC[2] (Long Run Incremental Cost) methodology calculates the cost of providing a defined increment of output, on the basis of forward looking costs incurred by an efficient operator.

When applying a long run perspective, all costs (including capital investments) are assumed to be variable (or avoidable). LRIC therefore provides NRAs with a methodology by which the costs of the capital-intensive electronic communications market, which, at the wholesale market level, is characterized by significant investment costs and long term asset lives, can be analysed and used for cost-orientation and pricing purposes.

The economic rationale behind this methodology is that it identifies the range (between the incremental cost 'floor' and stand-alone cost 'ceiling') between which a pricing signal could be considered rational assuming common costs are also fully recovered. It therefore helps NRAs in setting prices that neither encourage inefficient investment nor discourage efficient investment.

One particular issue for an NRA is to establish a basis for calculating a "forward looking" cost base. Given the uncertainties and difficulties of determining a forward look, LRIC computations normally take a cost base calculation using current cost methodologies. This includes for example the computation of the cost of products and services based on the cost of the most efficient available technology currently available. This will enable new entrant operators to purchase the use of existing network facilities without paying for possible inefficiencies of the notified operator.

The concept of incremental cost is similar, but not equal, to that of marginal cost. While an increment can be thought of as a finite quantity of a particular output, the term marginal refers to the last (infinitely small) unit of an output being considered. In economic theory prices based on marginal costs maximise economic surplus. Nevertheless, given the substantial economies of scale in electronic communications networks, it is considered to be more appropriate to analyse the costs of a specified increment of output, and ensure the appropriate recovery of common costs, rather than set a price at the marginal cost of a specified output.

4.1.1 Incremental cost concept

From an economic point of view, the incremental cost is the increase in total costs following the introduction of the increment. The increment can take several forms. A product or group of products could be defined as the increment, but also a single unit of production.

The costs associated with the last (infinitely small) increment is equal to marginal cost, which is defined as the increase in total costs following the introduction of an infinitely small unit of production. The costs associated with the largest possible increment are equal

2 All the consideration is made in this text for LRIC are also valid for LRAIC.

to the total cost of all activities. In that case, the increment would be defined as the whole range of products.

Mathematically, the incremental cost can be defined as the total costs associated with total production including the increment minus the total costs associated with total production excluding the increment.

Therefore the LRIC increment can be defined in two complementary ways:

- It is the additional cost a firm incurs in the long run in providing a particular service as a whole, assuming all its other production activities remain unchanged;
- It is the total cost a firm would avoid in the long run if it ceased to provide the service.

4.1.2. Imposition of LRIC cost modelling

LRIC is often used as a basis for setting tariffs for electronic communications services. Practical implementation ranges from all sorts of services, although the LRIC concept is most widely applied in the context of setting tariffs for access/interconnection services. These are the tariffs the network-based operator charges other operators wishing to make use of its network.

In general, the NRA will have to consider whether the market characteristics are such that application of LRIC best reflects the objective referred to in Article 8 of the Framework Directive, including the aim of the consolidation of the internal market and promoting efficient and sustainable competition and maximising consumer benefits. At the same time the tariff setting process, as informed by LRIC data, should consider the potential for margin squeeze issues.

LRIC cost modelling could be applied to determine this efficient cost level. An NRA could use either a bottom-up or a top-down approach to determine the LRIC cost of an efficient operator.

A top-down approach takes as a primary data source the company's accounting information, and calculates the costs of the relevant increments (normally at component or product group level) and applying appropriate cost/volume relationships usually incorporating several layers or hiearchy of processing. Undertakings must apply a forward looking cost basis such as CCA and assumptions on efficiencies.

A bottom-up approach can be described as an engineering type model, which starts with the demand for the service/product included in the increment and initially uses dimensioning algorithms to build an efficient engineering network that can address this demand and then to assess the use of each network element to the different services of the increment.

The two methods may be used as complementary tools. The top-down model to determine the efficiently incurred costs of the undertaking and the bottom–up model to check its efficiency. This method is referred to as the hybrid approach.

Both these approaches are economic signals about what an efficient cost for a service is. If constraints are equivalent, results should be equivalent.

LRIC cost modelling allows assumptions to be made about some input parameters. These parameters include the application of 'allowable' inefficiencies, the reasonable rate of return the operator is allowed to include in its prices and the amount of common costs that can be recovered. With the choices made on these parameters, an NRA can convey the right incentives to market parties to achieve the aim described above.

4.1.3 Relation between IC, SAC and FAC

The stand-alone cost ("SAC") of an increment is the cost incurred in providing that increment by itself, on the basis that no other increments are provided. Accordingly, all common costs that would be incurred if the increment considered were the only increment to be produced are included in the SAC of the increment.

The fully allocated cost (FAC) of an increment is the cost incurred in providing that increment, on the basis that none of the operator's costs are left unallocated. This means that part of the common costs is allocated to the increment involved. This allocation can be done in various ways, but is typically done with some (proportional) relationship to the (direct) costs that are already allocated.

The concepts of (LR)IC, FAC and SAC are related. IC is sometimes referred to as a lower bound price (price floor). Setting a price below IC would mean that not all incremental costs would be recovered. SAC is considered an upper bound price (price ceiling). A price above SAC would mean that an amount in excess of the IC plus all of the relevant common costs would be recovered. FAC is 'somewhere' inbetween the IC floor and SAC ceiling, as in the case of FAC a part of the common costs is allocated to the increment.[3]

In a regulatory environment where LRIC cost allocation results in a range (LRIC to SAC) rather than in a specific LRIC price (including a specific mark-up for common costs), a first test for ensuring that prices are cost-orientated is to check whether they are between the IC floor and the SAC ceiling. However, in a situation where the prices of more products and services are based on IC (including a mark-up for common costs), this first test alone is not sufficient to demonstrate cost-orientation. For example, if all prices were set at SAC, incremental and common costs would be more than recovered. Therefore, another test might be considered necessary. This is the combinatorial test, whereby the aggregate revenue of services straddling the common costs is compared to the LRIC and SAC of these services measured as a single increment. Potentially, a large number of combinatorial tests may need to be carried out.

3 When prices are set at SAC level, costs are more then recovered. The price at SAC should be considered only as a theoretical concept and in practice no price should be set at SAC.

4.2 Practical implementation of LRIC cost modelling

4.2.1 Introduction

When an NRA has decided that the use of LRIC is appropriate, it will have to take a multitude of choices regarding, e.g. the size of the relevant increment, time horizon, allocation of common costs, and the network topology to be modelled.[4]

An NRA planning to require the use of a LRIC methodology should provide at least some guidance on the following:

- a general description of the model (top-down, bottom-up) to be adopted, its purposes and the services to be featured in the model;
- operational definitions;
- main methodological assumptions, expressed in terms of costs and service development (increments) and the main cost categories;
- criteria for the LRIC methodology applications;
- a detailed process scheme for the cost calculations in LRIC;
- the cost-volume relationships to be used in the model;
- features of specific (fixed, mobile) networks;
- expected outputs;
- a timing for the implementation of the model.

4.2.2 Long Run and Forward Looking

The 'long run' is defined as the time horizon within which the operator can undertake capital investment or divestment to increase or decrease the capacity of its existing productive assets. Thus a very long time horizon is observed in which all costs, including investment capital and all costs related to network capacity, are potentially variable.

Moreover, as mentioned in the introduction, forward looking ("FL") costs are the costs that will be incurred by an efficient operator and are the appropriate cost base for LRIC cost modelling. Since these costs are difficult to estimate, current costs are usually used as the best alternative. The rational of using CCA or FL is that it mimics the cost base expected to be found in a competitive environment. Therefore any price subject to a cost-orientation obligation should be capable of being justified against LRIC cost data, but as observed in competitive markets, it does not necessarily mean that historically incurred costs will be fully recovered.

In practice, the concept of forward-looking costs requires that assets are valued using the cost of replacement with the modern equivalent asset (MEA). The MEA is the lowest cost asset, providing at least equivalent functionality and output as the asset being valued. The MEA will generally incorporate the latest available and proven technology, and will therefore be the asset that a new entrant might be expected to employ. It is measured by

adjusting the cost of a modern asset for functionality, capacity and so on to give the adjusted replacement cost.

4.2.3 Network topology

The network design in the LRIC model depends on what assumptions are made on network topology. One of the key decisions to be made in LRIC cost modelling is related to the question whether to adopt a 'scorched node' or a 'scorched earth' approach. In a top-down modelling environment this is a decision between whether or not to allow the notified operator to base its costs on the existing network topology (modified scorch node). In a bottom-up modelling environment this is a decision between whether or not the bottom-up model should take into account the existing network topology (scorched node), or that the costs in the model should be based on an ideal topology (scorched earth).

Designing an optimal network topology is not a straightforward task. For feasibility reasons, it is appropriate to take the existing network topology as the starting point for the cost allocation process. Such a scorched node approach would imply that the existing points of presence are maintained but that technologies are optimised consistent with there being an actual or potential new entrant or efficient competitor.

It can be appropriate to modify the scorched node approach in order to replicate a more efficient network topology than is currently in place. Such a modified scorched node approach could imply taking the existing topology as the starting point, followed by the elimination of inefficiencies. This may involve changing the number or types of network elements that are located at the nodes to simplify and decrease the cost of the switching hierarchy. Other important issues in this respect are how to deal with spare capacity in the network and the existence of stranded costs.

When the modified scorched node approach is not applicable because the elimination of inefficiencies is not practical, it could be more appropriate to use a scorched earth approach.

4.2.4 Relevant increment

LRIC cost modelling includes only those costs that are caused by the provision of a defined increment of output (or, alternatively, those costs that are saved when the defined increment of output is no longer provided). This implies that in LRIC cost modelling a decision has to be made concerning this relevant increment. In principle, there are an infinite number of different sized increments that could be measured, which can be grouped into single or multiple products, services, components or elements.

It is important that increments are defined in such a way that the resulting incremental cost data is fit for purpose, i.e. that the outputs can be used to demonstrate that charges are cost orientated. This requires that LRIC outputs and reporting formats are appropriately disaggregated to the product or service level.

Another relevant factor for defining the increment is the key external and internal cost drivers. Identifying these main cost drivers will assist the process of defining increments.

NRAs should define the relevant increment that strikes the balance between the disaggregated level needed to demonstrate cost orientation and the disaggregated level that can be practically implemented.

4.2.5 Cost Volume Relationships ("CVRs")

In LRIC-modelling, cost drivers can be used to identify cost volume relationships (CVRs). A cost driver is the factor or event that causes a cost to be incurred, while a CVR describes how costs change as the volume of the cost driver changes. The aim of identifying a CVR is to be able to demonstrate how costs change as the volume of the cost driver is altered.

4.2.6 Allocation of common costs

Common costs are those costs that are not increment-specific and relate to more than one increment. Therefore, they cannot be avoided unless all the activities to which they are common are closed.

Generally, the term 'fixed common cost' is the term given to those common costs that are fixed with respect to volume. 'Joint common costs' on the other hand, occur where an input produces two or more separable outputs in fixed proportions irrespective of volume.

Fixed and joint common costs both give rise to economies of scope.

In a regulatory environment it is accepted that all services should bear, in addition to their incremental cost, a reasonable proportion of the common costs. The preferred method of allocating common costs is Equal Proportionate Mark-Up (EPMU).

Equal Proportionate Mark-Up (EPMU)

A way of recovering common costs, is to apply the EPMU method[5]. Using this method, common costs are recovered in proportion to the incremental cost already allocated to the separate products and services. The advantage of this method is that it is generally easy to implement and use.

The disadvantage is that the allocation of common costs may not be related to the relative use of common cost by the separate products or services, which could make the allocation rather arbitrary. This may not be optimal from a welfare perspective, and could introduce adverse incentives for the parties involved in production and consumption.

5 Other methods for the allocation of common costs are, for example, the Efficient Component Pricing Rule (ECPR) and Ramsey Prices. With ECPR, allocation is based on opportunity costs. Ramsey pricing is rarely used in practice where regulation is concerned. An important reason for this is that this method is practically unfeasible due to the complex and dynamic information requirements regarding demand elasticities. Furthermore, Ramsey pricing may lead to price-setting that is detrimental for competition. Often, the services with the highest demand elasticity are those where competition is most intense. Not allocating common costs to these services results in relatively low prices, which may prove to be too low for competitors. Also, allowing the common costs to be allocated entirely to non-competitive (low demand elasticity) services might lead to conflicts with universal service obligations.

Section 5. The Cost of Capital and Capital Employed

Recital (20) of the Access Directive states that:

> "when a national regulatory authority calculates costs incurred in establishing a service mandated under this Directive, it is appropriate to allow a reasonable return on the capital employed including appropriate labour and building costs, with the value of capital adjusted where necessary to reflect the current valuation of assets and efficiency of operations".

Art. 13.1 of the Access Directive requires that NRA's (when imposing obligations relating to cost recovery and price controls, including obligations for cost orientation of prices and obligations concerning cost accounting systems, for the provision of specific types of interconnection and/or access,) should take into account the investment made by the operator and allow him a reasonable rate of return on adequate capital employed, taking into account the risks involved.

In order to derive a reasonable return on capital employed, the determinants of the level of this return are:

- the cost of capital;

and

- a capital value.

There must be consistency between the measure of capital employed on which the cost of capital is based and the measure of capital employed reported in the accounting separation obligations eventually imposed by NRA's in accordance with the Access Directive.

This will enable comparison of the actual percentage returns earned by operators from their regulated activities with the cost of capital allowed by NRAs when reviewing charges for these activities. The need for consistency and the implications of this for the allocation of items of capital employed are the focus of this section.

5.1 Cost of Capital

The cost of capital of operators should reflect the opportunity cost of funds invested in network components and other related assets. Therefore, the cost of capital includes a reasonable profit for the underlying business. The calculation of the cost of capital ensures that additional profit mark-ups on top of the cost of capital are not required.

The cost of capital conventionally reflects the following:

- the (weighted) average cost of debt for the different forms of debt held by each operator;

- the cost of equity as measured by the returns that shareholders require in order to invest in the network, given the associated risks; and

- the values of debt and equity.

This information can then be used to determine the weighted average cost of capital (WACC) using the following formula:

$$\text{WACC} = \frac{R_E * E}{(D + E)} + \frac{R_D * D}{(D + E)}$$

where RE is the cost of equity, R_D is the cost of debt, E is the total value of equity and D is the total value of interest-bearing debt.

When considering taxes in the formula, it can be written as:

$$\text{WACC before tax} = \frac{R_E}{1 - t_E} * \frac{E}{(D + E)} + R_D * \frac{D}{(D + E)}$$

where:

E/D = Equity / debt ratio;

t_E = taxation

The Capital Asset Pricing Model, when adopted[6], provides the formula for the cost of equity

$$R_E = R_F + \beta_E * P_M$$

where:

R_F = risk free rate;

β_E = represent the risk of the regulated asset relative to market risk;

P_M = market premium

The calculation of the WACC for an individual operator *in total* would be relatively straightforward – notwithstanding that there is scope for discussion about the precise derivation and value of inputs into the WACC formulae.

The NRA will then have to consider several options for each parameter. The most important thing is the transparency of the process followed. Amongst the many possible considerations, the following list provides an indicative example of the elements to be evaluated by the NRA:

Equity: the quantity (or average) of outstanding shares in the year(s) of application; this can be calculated using economic (market) values or book values;

6 If CAPM is not used, then the formula could be written as: RE= RF + PM

Debt: Gross debt (or debt less cash if the unlevered Beta of comparable companies is used); it can be calculated using economic (market) values or book values;

Equity/Debt ratio: it can be calculated using the current ratio or an optimal ratio, provided that they reflect reasonable consistency in the period of time considered for the analysis;

Cost of debt: it should result from a weighted average of the various costs of debt outstanding, or, alternatively, from the sum of risk free activities and a default spread, based on long term credit rating;

Equity risk premium: the premium (ie the premium that the marginal investor expects for choosing to invest in equity and not in risk free investments) is in principle a forward-looking measure of investor expectations, but can be derived from historical actual differences between stocks and bonds using the relevant stock market value of the company as a reference. The use of long-run historical series is generally recommended as well, unless such series refer predominantly to a very different risk profile (e.g. before/after liberalisation) of the market (or of the operator);

Risk free rate: normally treasury bonds with a long duration (10-30 years) are used. Typically, regulators may adopt several alternatives in determining the appropriate maturity of government bonds. That is to:

- base the maturity on the lifetime of the most relevant assets used in providing the regulated service. This reflects the planning horizon of investors in those assets;
- base the maturity on the duration of the regulatory determination;
- use the same bond term used to measure the market risk premium.

Beta: the volatility of the operator's share should be valued against one national index; an average of the Beta resulting from a benchmark of national and international indices (ie TLX) could also be used (the choice of the index should reflect the characteristics /preferences of a well diversified marginal investor);

Asset Beta: a measure of relative business risk alone, as the financial risk of leverage (i.e. debt) is excluded from asset betas;

Debt Beta: The debt beta reflects the financial risk borne by shareholders due to the entity's use of debt financing. It's usually assumed to be equal to zero. If calculated the debt beta formula can be expressed as follows: $\beta d = Pd / ERP$. Where βd is the debt beta; Pd is the debt premium; ERP is the Equity Risk Premium.

Elevered Beta: a measure of Beta which considers taxation effects and uses an optimal debt/equity ratio;

Taxation: it should be the level of taxation incurred by the company, applied for the year(s) of application. The effective tax rate (real world) of an efficient tax structured company may well be different from the headline rate. (Corporate tax regimes can vary significantly across Europe but the effective rate could include deferred tax movements in the profit and loss

statement. If a company is loss-making, the cost of debt may be carried forward as a tax loss, and in the absence of any better information, the headline tax rate could be used);

Once the parameters have been set, NRAs may need to consider whether the application of the global cost of capital represented by the WACC is appropriate for the regulated activities of notified operators. If so, the total WACC could be used for the purpose of determining the relevant cost-orientated charges.

Otherwise, NRAs may take into account the fact that different risks may apply to different activities, which could be reflected in different costs of equity 'R_E''[7], even if the undertaking's financial structure is the same. If so, there could be a different WACC for each market or disaggregated activity derived from electronic communication services (also referred as divisional WACC[8]).

5.2 The WACC and capital value

The WACC must be applied to a capital value for network components and other related assets in order to determine the return that needs to be recovered through regulated charges. While it may be easy to identify the values of debt and equity for an operator as a whole, it is not easy to do so for each of its constituent activities. This is because decisions about debt finance are largely corporate decisions determined by a number of factors, such as current cash-flow/borrowing conditions, historical borrowing facilities and tax planning considerations. Hence, the debt position of the corporate entity may not relate specifically to the funding requirements of individual activities. An alternative approach for determining the capital value for regulating its activities is therefore required.

One approach is provided by the following balance sheet equation:

Shareholders' funds (i.e. equity) + Debt = Net Assets excluding debt[9]

It follows that the capital values of regulated activities can be determined by apportioning net assets or capital employed. This apportionment should be carried out on a causal basis and under current valuation methodologies.

5.3 Capital employed

For price-setting purposes, NRAs and operators will be concerned with average capital employed during any period rather than with capital employed at a single point in time such as the end of the financial year. This is because a 'snap-shot' at any one point in time may

7 Empirical evidence shows that the cost of equity " R_E " is usually equal to the cost of risk-free debt plus a risk premium which varies according to the underlying activity. Activities belonging to competitive markets usually carry higher risk. The cost of debt 'RD also varies among activities and among companies, but - for a given financial market – it does not vary as much as the cost of equity 'RE'. As for the capital structure (D and E), it should also reflect the balance sheet of each main activity. Where there is only one main balance sheet for several activities, it is acceptable to assume the same capital structure for these activities. In this context, the cost of debt 'R_D'can normally be assumed the same for all activities, unless they have markedly different balance sheets.

8 Divisional cost of capital: the cost of capital that the division would have if it were a stand-alone firm. This requires estimating the division's beta, cost of debt, and capital structure.

9 i.e. fixed assets + current assets – creditors (excluding debt) - provisions.

not be representative of the average level of capital employed by operators. Specifically, working capital balances at a single point in time may not be representative of average working capital requirements over an extended period. The separate accounts of operators should therefore show average capital employed, rather than year-end balances, calculated using a geometric average between the beginning and the end of the fiscal year.

5.4 The need for consistency in the treatment of working capital

Inclusion or exclusion of individual items ought, in principle, to have a corresponding impact on the WACC. These two effects (i.e. the decision to include or exclude items and the corresponding adjustment to the WACC) offset each other in terms of their overall effect on the absolute return required by operators.

Section 6. Qualitative Characteristics of accounting information

The purpose of this section is to provide guidance and explanatory material on the qualitative characteristics that an NRA would expect from the information prepared and presented by notified operators under any cost accounting or accounting separation obligations. These characteristics also provide an analytical framework that can be used in specifying financial information.

According to Article 13 of the Access Directive, the burden of proof that charges are derived from costs including a reasonable rate of return on investment shall lie with the operator concerned. Additionally, NRAs may require a notified operator to provide full justification for its prices. Undertakings notified as having SMP in a specific market to which an obligation of implementing a cost accounting system in order to support price controls, are required - by means of implementation of an accounting system according to NRAs' provisions – to produce regulatory financial statements to demonstrate compliance.

6.1 Basis of preparation

On the whole, accounting principles that apply to the preparation of general purpose financial statements under national or international accounting standards can form the basis of regulatory reporting. One way for an NRA to ensure this happens is to explicitly require International Accounting Standards (IAS) or International Financial Reporting Standards (IFRS) in accordance with European regulations to apply in the absence of regulatory accounting guidelines.

Regulatory accounting information should be prepared in accordance with a set of principles, policies and procedures set out by NRAs, either when initially defining the system or as a result of an audit process, reviews and investigations and a subsequent decision. These principles and procedures could include the following:

a) Regulatory accounting principles

   These principles establish the key doctrines to be applied in the preparation of regulatory accounting information. They should include, inter alia, the principles of cost causality, objectivity, transparency and consistency.

b) Methods for attributing costs, revenues, assets and liabilities

   A description of the attribution methodologies used to fully attribute revenues, costs, assets, liabilities and capital employed.

c) Basis for transfer charging

   A description of the basis used to set transfer charges between disaggregated regulatory services as required under accounting separation obligations. Typically this will prescribe methodologies for ensuring that an operator charges itself on the same basis as it would charge other operators buying similar services where there is a regulatory requirement to do so.

d) Accounting policies

These policies follow the form used for the preparation of standard statutory accounts and will include, for example, details of fixed asset depreciation periods and the treatment of relevant research and development costs. The basis on which assets are valued (e.g. asset lives and depreciation methods) will be included as accounting policies.

e) Costing methodologies

A description of the methodologies used to prepare costs, including reference to cost base and standards, allocation and valuation methodologies, identification and treatment of shared and common costs.

These bases for preparation need to be sufficiently detailed and comprehensive so as to ensure that the operator and the independent auditor can apply them consistently and thoroughly.

In addition, in order for an NRA to meet its objectives, regulatory financial information should be relevant, reliable, comparable, and capable of being subject to review.

6.2 Relevance

Information is relevant if it has the ability to influence economic decisions and is provided in time to influence those decisions. An NRA therefore will wish to ensure that the qualitative characteristic of relevance is applied as a selection criterion at all stages of the regulatory financial reporting process. In practice this may mean closely defining the basis of preparation, the form and content of the statements and verification processes, prior to their use for regulatory decisions.

Relevant information has predictive value (if it helps to evaluate or assess present and future events) or confirmatory value (if it helps to confirm or correct past evaluations and assessments), or both.

6.3 Reliability

There are a number of criteria that can be applied to test if information is reliable, such as whether:

- it represents faithfully what it purports to represent;
- it is free from deliberate or systematic bias;
- it is free from material error;
- it is complete (subject to materiality tests);
- its basis of preparation is carried out in an objective (fair) way; and

- it has a degree of caution (i.e. prudence) applied in exercising judgement and making the necessary estimates.

6.4 Comparability

The information contained in an undertaking's financial statements is considerably more useful if it can be compared with similar information for other reporting periods in order to identify trends and differences. This aspect is particularly valuable for NRAs where comparable information is used to assess the impact of competition or establish cost trends for price control purposes.

Comparability is usually achieved through a combination of consistency and disclosure of accounting policies. In a regulatory environment this would include regulatory accounting treatments such as cost attribution methodologies. Full transparency of these policies and other methodologies used to prepare regulatory financial statements is therefore important.

Comparability implies consistency over time in the way in which a regulated undertaking prepares and reports financial information. For instance, changes to the level of disclosure in the regulatory reporting should only take place after the NRA's approval. As indicated above, disclosure of the basis of preparation together with any changes and the effect of those changes enhances the usefulness of the data.

6.5 Materiality

Materiality is a term used to express the relevant significance and importance of a particular matter in the context of the preparation, presentation and audit of financial information.

A matter is material if its omission or misstatement would reasonably influence the economic decisions or interpretations of users. It is therefore not capable of general mathematical definition but is reliant upon qualitative judgements and estimations. An item can be deemed material in the context of the accounts as a whole or at a more detailed level depending on the purpose of the information.

In the regulatory context, it is very important that materiality thresholds are taken into account when an NRA uses the information for compliance purposes. A transfer charge showing non-discrimination may, for example, need to be calculated in a very precise and accurate way but a general cost-orientation obligation could be examined with broader materiality thresholds.

6.6 Audit trail

A complete audit trail which allows the cost accounting information to be traced and reconciled between (both to and from) the source data and the final financial reports of the notified operator should exist. An audit trail provides robust documentary evidence of the flow of information from the core financial and operating systems to the final regulatory financial statements, reconciling costs through the preparation process, and identifying supplementary information sources used in the derivation of attribution methodologies, transfer prices and other adjustments. The audit trail should set out sufficient evidence for a

reviewer to satisfy themselves as to the veracity and reliability of the regulatory financial statements.

6.6 Data integrity and maintenance

Data used for regulatory statements must satisfy integrity requirements. It must therefore be the responsibility of the undertakings' legal representative to ensure the data is presented in the information system of the audited firm. Data integrity must also be assured through the availability of electronic or paper based support records or systems that enables the auditor to perform tests and verifications and allow him to begin the audit with confidence regarding the audited data.

Bearing in mind an NRA's duties and tasks, financial information may be required and should be made available by operators on a periodic basis (at least annually), in order to monitor compliance with regulatory obligations, and on request for investigation and analysis of specific situations regarding non-compliance of regulatory obligations and possible anti-competitive behaviour. Additionally, financial information should be kept for a suitably prescribed period in line with national legislation (e.g. statute of limitations), allowing the costs, revenues and outputs to be traced and the evaluation of the effects on costs of applying possible different criteria and methods. This is particularly relevant in respect of the asset base where the fixed asset register can play an important role in recording the evolution of CCA values over time.

If the relevant data is taken offline after a reasonable period of time (data is removed from dedicated information systems in use by the operator), it should at least be possible to submit to the auditor documents (printouts or other material) certified by a high-ranking official. This would allow the auditor to perform some tests on data relevance for the year of verification.

Section 7. – Transparency, confidentiality, market-related limitations and publication of accounting data and methodologies

7.1 Transparency

NRAs' access to undertakings' accounting data

The EU regulatory framework makes several explicit references to the need to implement and maintain transparency. Firstly, the NRA and the auditor should have access to all information (including confidential information) needed to fulfil their respective tasks related to compliance with the requirements of non-discrimination, cost accounting, price controls and accounting separation.

NRAs and auditors are required to ensure the confidentiality of such information in accordance with Community and national rules on business confidentiality, in particular as regards third parties and competitors.

In view of the above and to the extent that the request for information from the undertaking is proportionate to the performance of the task of ensuring conformity with the provisions of the Directives concerning cost accounting and accounting separation, Article 5 of the Framework Directive requires Member States to ensure that undertakings provide all necessary information, including financial information, to NRAs and sets out rules for confidentiality regarding the information to be given to third parties.

The notified operator shall ensure that any data, information, description, material or explanatory document prepared in respect of accounting and other methods used in the preparation of the accounting records and Cost Accounting Financial Statements shall be sufficiently transparent and prepared so that a suitably informed reader can easily gain a clear understanding of such data, information, description, material or explanatory document. This could include the overall structure of the SMP operator's financial and information systems from which regulatory accounting data is derived, and in particular the sequence of the processing and 'cascade' effect of the intermediate cost centres; be able to gain a detailed understanding of all the material, methodologies, surveys and drivers (e.g. systems, processes and procedures) applied in the preparation of the regulatory accounting data and make their own judgement as to the reasonableness of these methodologies and driver data and any changes to them.

Transparency of the bases of preparation of regulatory financial information is essential in order for NRAs to have confidence in the financial statements, and to allow them to make economic regulatory decisions based thereon. Therefore it is necessary to ensure the transparency of cost accounting system and the bases of preparation of the information so that the NRA can effectively monitor and enforce compliance with the SMP provider's obligations for non discrimination, cost-orientation, cost recovery and price controls. Also that its is proportionate in that the level of transparency is no more than is necessary for this purpose.

7.2 Confidentiality

Confidentiality is an issue that needs to be addressed in order to assure notified operators that sensitive information provided to the NRAs will remain confidential and not made public, potentially putting the notified operator at a competitive disadvantage.

NRAs should allow notified operators the opportunity to demonstrate that the information is commercially sensitive including submitting some relevant evidence about the potential commercial damage to them. NRAs should consider this in advance of any decision regarding publication.

7.3 Publication of accounting data and methodologies

Complementary to the principles referred to in the above sections, is the publication of data and associated methodologies. As already pointed out in the previous paragraph, where information is confidential in nature, NRAs are required to ensure the confidentiality of such information, in accordance with Community and national rules on business confidentiality (Article 5.3 of the Framework Directive). However, to the extent that these rules are respected, a number of provisions of the regulatory framework aim at increasing public access to accounting data and methodologies. In particular:

- under Article 5.4 of the Framework Directive, NRAs are granted the power to publish such information that would contribute to an open and competitive market;
- Article 9.1 of the Access Directive allows the NRA, in accordance with the provisions of Article 8 of the same Directive, to impose obligations for transparency in relation to interconnection and/or access, requiring operators to make public specific accounting information. In this respect, the NRA may specify the manner in which the information is made public (type of publication, cost, etc);
- in accordance with Article 11.2 of the Access Directive, accounting records that would contribute to an open and competitive market may be published by the NRA;
- according to Article 13.4 of the Access Directive where the implementation of a cost accounting system is mandated in order to support price controls, a description of this system is made publicly available, showing at least the main categories under which costs are grouped and the rules used for the allocation of costs.

The Recommendation's annex and Section 8 below covers the information to be included in the statement concerning compliance to be published annually, where the implementation of cost accounting systems is mandated and the operator has an obligation regarding price controls.

The publication by the notified operator of sufficiently detailed cost statements showing the average cost of network components will increase transparency and raise the confidence of competitors that there are no anti-competitive cross-subsidies. NRAs should set guidelines on the timing and format of the publication according to EU and national laws.

7.4 Relevant market related limitations

The EU regulatory framework requires NRAs to define relevant markets within their country. This obligation applies to both the markets identified in the Relevant Markets Recommendation and to additional relevant markets that NRAs may consider merit investigation (i.e. “Article 7” markets).

Obligations of accounting separation and/or cost accounting systems may be imposed on electronic communication operators notified as having SMP in a relevant market. Therefore it will be necessary (i) to identify costs associated with the services provided in SMP markets and (ii) to evaluate and measure the impact of the costs incurred in non-SMP markets on the costs of regulated services/products in SMP markets and (iii) to assess the level of common costs relating to both SMP and non-SMP activities and the appropriate attribution of those common costs.

In compliance with the accounting separation requirements described previously in this Common Position (Section 1), NRAs may consider that a more disaggregated set of accounts or further clarification should be prepared by the operator on request, in order to monitor compliance with non-discrimination and transparency principles. The provisions of the regulatory framework provide a basis for a NRA to gather accounting separation information in respect of non-SMP markets. In particular, under Article 16.4 of the Framework Directive, where a NRA determines that a relevant market is not effectively competitive, the NRA shall impose appropriate specific regulatory obligations on the undertaking identified as having SMP. This may include the imposition of accounting separation in relation to non–SMP markets. The imposition of accounting separation on non-SMP markets would be compatible with the regulatory framework only insofar as a NRA can justify that the provision of such information is necessary to carry out its regulatory tasks; the imposition of such an obligation must be based on the nature of the problem identified, proportionate and justified, in accordance with the provision of Article 8.4 of the Access Directive. Under the conditions referred to above, the extension of the obligation of accounting separation to non-SMP market would be proportionate since it would be an effective means for the NRA to achieve its regulatory objective.

Access by a NRA to the books and records of non-regulated services could be key in relation to the investigation of disputes regarding regulated services as well as the monitoring of non-discrimination obligations.

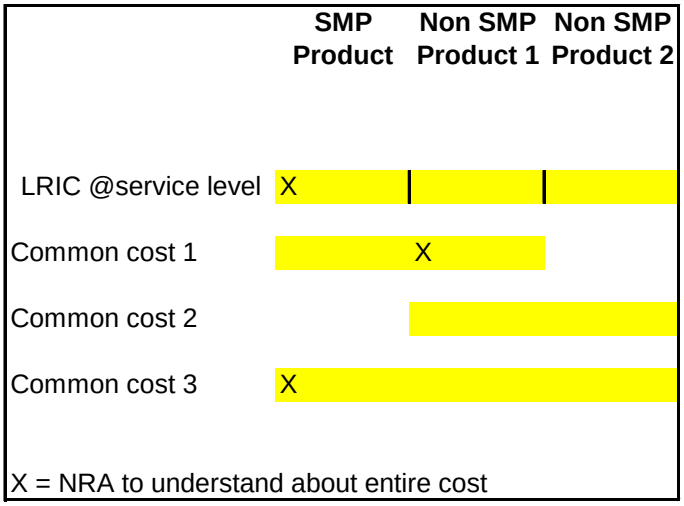
In general, information gathering powers in relation to non-SMP markets have to be exercised in a proportionate manner in order to apply a proper and effective accounting separation obligation on an SMP operator in a duly identified SMP market. It may also be necessary for NRAs to have access to information and records of non-regulated markets/services in order to perform their obligations effectively. Section 7.5 below sets out principles for access to non notified markets.

7.5 Access to information on non notified markets

NRAs may require those operators with SMP in relevant markets to have financial accounting and reporting arrangements which are relevant, reliable, comparable, understandable, comprehensive and substantial. Such reporting arrangements should be

capable of supplying financial information either on an appropriate historical, or current cost basis. In particular, costs are attributed to a service only if they are necessarily incurred in the course of providing the service (either alone or in combination with other services).

Certain communications operators are characterised as being vertically integrated, with large service/product portfolios, with significant indirect costs which benefit from significant economies of scale and scope. Notified operators of this type may operate in markets where they are subject to SMP obligations as well as in competitive markets. Thus, the division of services and products between the different markets, and the corresponding costs, capital employed and revenues, should be reflected in cost accounting systems such that coherence and integrity of information is assured. Where such specific costs form part of the cost of service in a market where a notified operator has SMP, NRAs need to have visibility as to the basis of and amount of allocation across all services.



NRAs need to be able to ascertain to what extent the services in those markets where notified operators do not have SMP ('non-SMP' markets) may impact on services supplied in SMP markets. In order to determine what information is required for regulatory purposes, it is necessary to explore the nature of the costs incurred by activities undertaken in the course of supplying a service (or combination of services).

Detailed financial information relating to markets not having SMP designation is of relevance to NRAs in so far as it demonstrates the non discriminatory allocation of costs. To this end, controls related to services supplied in notified markets must demonstrate that the transfer charges paid from the downstream units of the notified operators to the wholesale units of the same operator are similar to those paid by the competitors present in the same downstream market. Such controls may include the use of 'control totals' or a separate set of information for non notified markets reconciled back to the statutory accounts for the aggregate of services supplied to non SMP markets. Failure to do this could result in costs which should be charged to a competitive market being charged to a regulated market with

appropriate increases in prices and loss in welfare for consumers or, in reverse, could result in predatory prices or cross subsidies.

The financial accounting and reporting arrangements of the notified operator must ensure that it can demonstrate that:

- the resulting costs for a given service have been properly and appropriately derived from the entirety of financial information relating to all services; and the separation for accounting purposes of the relevant market, its services and any individual identified activities has been carried out properly and appropriately;
- the completeness of the financial data relating to services supplied in SMP markets is verifiable; and
- in order to provide assurance as to the reliability of financial information, such information should be traceable, i.e. enough evidence exists that is sufficient to enable the auditor to follow the trail leading to the original information/data provided in the general ledger or other operational systems.

Section 8. Audit scope and verification

The Recommendation's annex gives guidelines on reporting requirements and publication of information. This section outlines issues concerning the auditor's control and the audit scope, expands the recommendation's annex and addresses issues not covered in the annex.

The audit scope for regulatory purposes is relatively wide and goes beyond the traditional audit scopes performed on the statutory financial statements. To this end, some guidance is provided here:

- scope of the audit, timing, powers and obligations of the controlling entity;
- elements to be covered in the audit;
- mandate of the auditor;
- auditing entity; guidance on the elements above apply regardless of the entity that carries out the annual audit, which can be both the NRA itself (provided it has the necessary qualified staff) or another qualified body, independent of the operator concerned (as stated by Recital 21 of the Access Directive and Recital 27 of the Universal Service Directive).

a) Scope and definition of audit

The audit describes a process comprising the examination and verification of an undertaking's accounting reports and supporting documents. This includes a systematic method of checking and verifying the accounting information (ensuring the rules set out by the NRA are correctly applied). A further concern is the definition of the term "audit". In the classic sense this term would imply procedures performed on a test basis which would give the auditor an appropriate level of assurance that each item of information produced for the cost accounting systems for input to the financial statement is correct and audited to PPIA-

(properly prepared in accordance with) or FPIA (fairly presents in accordance with) basis or similar rules.

If an external verification is required (in the form of a 'fairly presents' or equivalent statement), in some cases an 'agreed-upon procedure' (or similar procedure) arrangement is a possible alternative option, particularly given the possibly qualitative nature of some NRAs' requirement

Undertakings' costs of a regulatory audit or other procedures concerning compliance with rules covering non regulated sectors should be considered as part of the proportionality assessment.

b) Elements to be covered by the audit

The main elements to be covered by the audit are the following: a) the scope of costs included in the model and the scope of costs allocated to individual regulated products (where appropriate); b) the reconciliation between the cost model and statutory accounts; c) correctness of figures, including operational data: volumes, technological parameters; d) methodologies used regarding amortization, cost capitalization, allocation and for the evaluation of the assets (e.g. current costs); e) transfer charges in separated accounts; f) reconciliation between the cost model and the separated accounts; g) Cost Volume Relationship and accounting system information.

c) Auditors' Mandate

The auditors' mandate should be clearly established to ensure that the relevant aspects of the auditing process are well defined and transparent. In this regard, the NRA should publish a description of the main elements of the mandate, such as the following:

- the auditing entity should have access to, inter alia, all relevant data and information, supporting documents, source systems and related documentation;
- the undertaking subject to verification should make appropriate resources available in order to be able to explain or respond to questions arising during the review;
- the responsibility of the auditing entity should be clearly defined regarding certification and confidentiality.

d) The auditing entity

When the verification of the compliance with a cost accounting system is mandated in order to support price controls or retail controls, the compliance should be confirmed by a qualified body, independent from the operator concerned. The NRA may itself undertake the annual control, provided it has the necessary qualified staff. The Commission Recommendation on statutory auditors' independence[10], establishes a sound framework against which independence can be tested, where relevant.

10 Commission Recommendation of 16 May 2002, Statutory Auditor's Independence in the EU: A Set of fundamental principles, OJ L 191/22, 19.7.2002.